

# Quiz 6

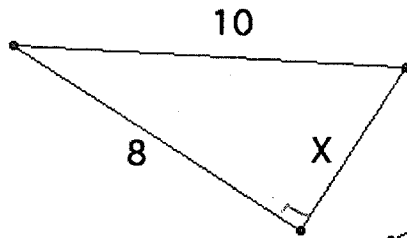
Key

Part A: [2] True/False. Circle T if the statement is *always* true, otherwise circle F. No partial credit is given.

- T  F Given a triangle with sides of length  $a$ ,  $b$ , and  $c$ , we know  $a^2 + b^2 = c^2$ .  
*only for right triangles*
- T F The area of a circle with radius  $r$  is  $\pi r^2$ .
- T  F There are 100 square centimeters in 1 square meter.  
*nope 100m in a meter so 1m<sup>2</sup> = 100m x 100m*
- T F The area of a square is the base length times the height.

Part B: Show *all* your work on the following. A right answer with no supporting work will receive no credit.

1. [3] Find  $x$  in each of the following:



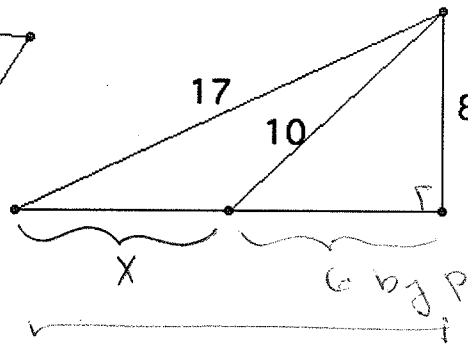
$$x^2 + 8^2 = 10^2$$

$$x^2 = 100 - 64$$

$$= 36$$

$$\Rightarrow x = 6$$

T



$$y^2 + 8^2 = 17^2$$

$$y^2 = 289 - 64$$

$$= 225$$

$$\Rightarrow y = \sqrt{225} = 15 \text{ (T)}$$

$$\text{so } x = \sqrt{225} - 6$$

$$= 15 - 6$$

$$= 9$$

T

$$\begin{array}{r} 17 \\ 17 \\ \hline 119 \\ 170 \\ \hline 289 \end{array}$$

$$225$$

$$\begin{array}{r} 15 \\ 5 \overline{) 45} \\ \underline{45} \\ 0 \\ 9 \overline{) 9} \\ \underline{9} \\ 0 \end{array}$$

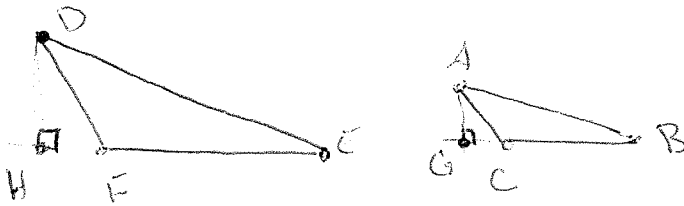
2. Assume ABC is similar to triangle DEF and

$$\frac{AB}{DE} = \frac{2}{3}$$

(a) [1] What is the ratio of the heights of the triangles?

$$\frac{2}{3} \text{ (1)}$$

(b) [4] Justify your answer above.



Start (1)  
 make all (1)  
 similar  $\Delta$  (1)  
 sense (1)

Create ~~ex~~ line segments from D and A that are  $\perp$  to the opposite side so that  $\overline{DH}$  and  $\overline{AG}$  record the heights of our  $\Delta$ 's

Note  $\triangle DHE \sim \triangle AGB$  by Sarah's observation (angle E, B + the  $90^\circ$ )

Since  $\triangle DHE \sim \triangle AGB$   $\frac{AB}{DE} = \frac{AG}{DH}$

which we were given above is  $\frac{2}{3}$ .